

World Atlas of Intellectual Capital: A Sketchy Version

Eduardo TOMÉ

*Centro Lusíada de Investigação de Desenvolvimento (CLEGI)
Universidade Lusíada de Famalicão, Portugal
Largo Tinoco de Sousa, 4760-108 Villa Nova de Famalicão, Portugal
eduardo.tome@clix.pt*

Abstract: *This paper presents the first draft of a future World Atlas on Intellectual Capital (IC). We believe IC is a global phenomenon and that analysing the distribution of IC in the world can help understanding much of the social and economic problems of today. The Atlas is made according to an economic point of view. Therefore we analyse IC through twelve relevant economic issues: demand, supply, equilibrium, price, quantity, market forces, role of the State, investment, stock, need, international flows and returns. Those twelve economic perspectives are grouped in four classes: market, agents, assets and international flows. For a start we use twelve economic spaces: Northern Europe, Central Europe, Southern Europe, Eastern Europe, Sub-Saharan Africa, Muslim World, Latin America and Mexico, the Anglo-Saxon countries, Russia, India, China, Japan and the Asian Tigers. We achieve the description of a very complex, but very valuable, socio-economic mosaic. We depict the difference between many of those areas in IC terms and as a result the difference in their socio and economic well-being. We hope to carry on the study in order to make a book on IC distribution in the world. Contributions are welcome.*

Keywords: intellectual capital, economics, countries

Introduction

There is little doubt nowadays, that Intellectual Capital (IC) is a decisive asset for countries and organizations worldwide. This importance is explained by theories and verified by empirical studies. Accordingly, the World Bank (WB) defined the Knowledge Asset Indicator (KEI) in the scope of the Knowledge Asset Methodology (KAM) to build a comprehensive approach to IC by country. In our opinion the WB analysis is certainly valuable, but it is not enough. The WB focus itself in the consideration of IC as an asset, something IC certainly is. But we do not know any analysis for the main countries and economic spaces of the world, about the IC market.

We think that the analysis should be made in four steps. In step one the variables that constitute the basic setting of any market, namely: demand, supply, price, quantity and equilibrium, should be defined for IC. Secondly, the nature of the major players in that market (private, public and non-profitable private) should be analysed; in particular, the way the public sector interferes in the market of IC in every country (ruling, funding or providing) should be the object of a close examination. Thirdly, as we accept that IC is a national asset, we think that it is important to consider the notions of investment, stock, return and need. Finally, we think that in a globalized world it is very important to analyse the international flows of IC; those flows have (obviously) many consequences in the market, relevant agents and asset.

We believe that if we could have available data on all those variables, for a given country, we could be able to suggest a public policy on IC for that country. And we think that by having a depiction of the situation on IC worldwide we could profit of a good guide for orientating the world economy.

In this paper we begin by defining the concept of IC (1.1); then we describe the traditional way of analysing IC (1.2) and we present a new and complementary way of analysing IC (1.3). In section 2 we briefly describe the four perspectives that we will use in the Atlas (2.1) and we apply the analysis to the 12 economic spaces just mentioned (2.2). Section 3 contains brief conclusions (3.1) and some suggestions to further research (3.2).

1. Concept and methodology

1.1 *Intellectual capital*

The concept of IC is one that can only be defined by default or proxies. Some main, very basic and generally accepted ideas about IC, are the following:

- a. IC is a sum of Human, Organizational and Social commodities (Edvinsson & Malone, 1997; Bonfour & Edvinsson, 2005).
- b. IC includes a variety of goods and services like education, training, experience, competences, skills, health, R&D, patents, brands and organizational routines. These goods or services all have two basic characteristics: they are intangible and they somehow relate to intelligence.
- c. IC is possessed by individuals, companies, organizations, regions and countries.
- d. IC may be divided in Human (i.e. education, training) and Nonhuman (R&D goods, patents).

Regarding the Atlas construction, it should be noted that the IC is by itself a sum of different types of goods of services, means that the analysis of IC can be done either in a “macroeconomic/aggregative” way or in a “microeconomic/disaggregative” way. In consequence:

- a. In the first type of analysis we would consider a single market for IC per country, and one situation for each one of the 12 relevant variables we mentioned in the introduction;
- b. in the second type of analysis we would consider as many submarkets as the many divisions on the concept of IC that we would use.

The division of IC in smaller subsections would give realism to the study, but it would also require much more data. And, it should not be forgotten, that “macroeconomic/aggregative” analysis, if it is possible to perform, would be very useful because it would give an unique vision to the markets.

1.2 The traditional way of studying IC: accountability and management

The “traditional way” of analysing IC is summed in column 2 of the following Table 1. This perspective is company based, asset related and short term oriented. The fields that relate to that analysis are management and accountancy. The basic question is to define the relation between MV and BV, and in consequence, it is important to define IA as an asset and also the returns of this asset. This perspective has been applied to companies and organizations, and, residually, to regions and countries. In this point of view, the IC is considered to be a part of the investment, as in any private business. Therefore, managers and company stakeholders should be interested in IC studies; the labour force could also be interested because the IC has consequences to the labour market.

1.3 The method of analysing IC to be used in the Atlas: economics and public policy

In order to make the Atlas, the traditional analysis must be considerably changed. In our perspective, the IC is viewed as a commodity for which the national market must be defined. This new perspective is summarized in the third row of the Table.

We consider the IC market defined by 12 variables, namely: demand, supply, equilibrium, price, quantity, market forces, the State, need, investment, stock, flow and return. The meaning of each one of those variables is addressed in the next subsection (2.2).

It is essential to understand that the Atlas represents an extension of the analysis concerning IC from the management and accountancy perspective

to the economic perspective. We are interested in examining the variables that define the market, and not only in analysing the IC as an asset. Accordingly, we want to find the complex societal and long term returns of IC and not only the short term returns of IC for companies. We want to focus the analysis in the national perspective and market perspective of IC and not only in the company perspective. Furthermore, we are interested in supporting the possible public policies on the IC market and not only in analysing IC from a private perspective. Therefore, we believe that the Atlas would not only interest companies; instead, policy makers, voters, students, teachers, unions; and any member of the civil society, with an interest in IC, may find the Atlas useful.

Table 1. Two complementary methodologies to study IC

	Traditional Studies	Proposed Methodology
Basic perspective	Accountancy and Management	Economics
Basic question	Market Value minus Book Value	Market of IC
Variables	Assets	Demand, Supply, Price, Quantity, Equilibrium, Market forces, Role of the State, Investment, Stock, Flow, Needs
Outcomes analysed	Revenues (short run)	Returns (economic and non economic, short and long run)
Dominant perspective	Company and organization based. Residually regions and countries	National and market based
Management perspective	Private business	Public policy
Investment perspective	Company Investment	Societal investment
Economic agents that might be interested	Managers and stakeholders Also: own labour force	Policy makers Also: voters, job-seekers, students, civil society

1.4. Complementarity or antagonism?

We emphasize that the two methodologies here defined are complementary one to another. In fact, we consider that our methodology enlarges the traditional one because it not only takes in account the asset/return question,

but also goes far beyond it. Even more important, we are not interested in company-based and profit-oriented studies, but in micro- or macroeconomic and public policy oriented studies. However, we would be in the first row of those who defend and confirm the importance and the validity of the “traditional” way of thinking about IC. We just believe that it was too limited and that it should be complemented.

2. The Atlas of intellectual capital: a theoretical introduction

In this section, the theoretical foundations of the Atlas are described. First (2.1), the four perspectives used are briefly discussed: market perspective (2.1.1), agent perspective (2.1.2), asset perspective (2.1.3) and global perspective (2.1.4). Second (2.2), the meaning of the twelve different variables that should compose the Atlas for each country is explained: demand, supply, price, quantity, equilibrium, main market forces, role of the State, investment, stock, return, need and international flows. All the analysis can be made in the aggregate and disaggregate perspectives as defined in 1.1.

2.1 Theoretical description of the Atlas

2.1.1 Market perspective: demand, supply, price, quantity, and equilibrium.

We use a very basic definition of market. We assume that there is a demand (defined by the economic agents that want the good) and a supply (constituted by the economic agents that produce the good) for IC. Supply and demand are explained in terms of quantity, and made at different prices, generating equilibrium or disequilibrium. The demand is explained by some kind of utility and the supply by some kind of return.

The supply of Intellectual Capital is defined by the actions made by the National systems of Welfare State. A Welfare State (WS) is a set of policies organized to solve social problems in the public good (Esping Andersen, 1990). To provide IC is one of these problems. Indeed, IAs tends to exist in societies that develop some very elaborate types of social infrastructures. Those social infrastructures relate to Education, Health, R&D and Basic Infrastructures. They are only provided if the society has a Welfare State. They generate internally the intangible assets that will be used by companies and organizations. Several types of Welfare State exist: Social Democratic, Conservative, Liberal, Latin and Socialist (Deacon, 2000; Esping Andersen, 1990; Ferrara, Hemerijck & Rhodes, 2000). In each type of Welfare State, different forms of Welfare Mixes exist, defining different balances between the market major players (2.2.6). In

a Liberal Welfare State the private sector is dominant; in a Socialist Welfare State the public sector is almost exclusive. In a previous study we found that Social Policies are the hidden face of the IC, because in practice the best WSs are those that generate more IC (Tomé, 2008).

As with any other good or service, when the demand and supply are at equal levels equilibrium exists in the IC market. Equilibriums in IC markets have been studied in a macroeconomic way (Ashton & Green, 1996). In theory and in practice at least three different levels of equilibrium exist in the national markets of IC: high level, medium level and low level.

- a. In the equilibrium of high level there is a virtuous cycle of investment in IC. Investments are made by organizations (demanding IC) because they expect knowledge workers to be available. In return, people and the Welfare States invest (and therefore supply) in IC because they expect that the investment will guarantee a future job and a prosperous social life. This type of equilibrium is characteristic of developed economies that, significantly, are those that have the most important and developed form of Welfare States;
- b. In the equilibrium of low level there is a vicious cycle regarding the investment in IC. Investments (and demand) by organizations in IC are small because they do not expect knowledge workers to exist in the economy. At the same time, individuals and the Welfare State tend to invest little in IC because they do not perceive the investment as worthy. This type of situation is characteristic of countries with low income and low Human Development Indicator (HDI) figures, which are also the ones that have the weakest form of Welfare States, if any; in fact, in many of those countries it may be assumed that only a “Welfare Society” exists, in which the public and the Non-Governmental Organizations (NGOs) find ways of satisfying the basic social needs of welfare, but not even a Welfare State;
- c. A third type of equilibrium exists, particularly in emerging countries. In those countries the supply of IC tends to be increasing rapidly, in order to match the growing in the demand for IC that results from the strong process of economic development. This third type of equilibrium is related to a weak form of Welfare States, named a “Quasi-Welfare State”, in which the different market forces try to begin to cope, providing the social goods demanded, among which is IC.

It may also happen that the IC market is not balanced.

- a. In high equilibriums, in particular in times of expansion, the demand tends to be higher than the supply and some countries tend to attract the IC from

others less developed; this happened in the USA and Western Europe in the sixties of the 20th century;

- b. In low equilibriums, the demand tends to be smaller than the supply and the few IC assets tend to flee to more advanced countries; a country may generate knowledge workers that are not used by the economic structure. That situation happened after the fall of the Berlin Wall in the Eastern European economies, and is happening now with the young graduates from the Southern countries of the Eurozone.

The difference between a developed country (high equilibrium), an emergent country (middle equilibrium) and a developing country (low equilibrium) would be that the demand and supply curves would relate to more quantities in the developed countries than in the emerging or developing countries. In relation to the price, the issue is more complex. Due to supply problems, a commodity of IC nature may be more expensive in a poor country than in a rich one. Anyway, the cross point between demand and supply curves would be higher (at least in quantity grounds) in a developed country, than in an emerging country or in a developing country.

2.1.2 Agent perspective: main market forces and role of the State

Given the definition of market we use, and the rationale for demand and supply that we accept (see 2.1.1, the market could be explained by private actions) and includes only private agents, namely private consumers seeking utility and private companies seeking profits. However the participation of the public bodies and of the “third sector” is frequent. Public intervention is explained by market failures and equity concerns. In particular, the public sector may legislate, fund or produce policies on IC. The intervention of the “third sector” is explained by the failures of both the private and the public sectors.

2.1.3 Asset perspective: investment, stock, return and need

Accordingly to our own definition of IC, we will study a mix of capital goods or services. Therefore, we consider that the purchase will be made in the present moment, but the return will be felt in the future, presumably long time afterwards (Tomé, 2005). That purchase should be considered as an investment and it would accrue to the existing stock value of IC. Furthermore, given that IC is capital, we assume that its depreciation should be measured. Given that IC relates to organizations, the depreciation should not only be physical but also social (unlearning and degeneration of competences and skills). Finally, we assume that, the need for IC should be defined as the difference between the actual level of IC of an agent and of those of world leaders in the field.

2.1.4 Global perspective: international flows

One of the basic features of IC is its relationship with globalization. The IC market of a given country is balanced by inflows from other countries and by outflows to other countries. Basic models of attraction and repulsion explain the migration of IC, as it happens with the movements of labour or the movements of companies.

It is interesting to note that this fourth perspective has an impact in the other perspectives, namely:

- a. The inflows add to the main market forces and should be welcomed by the State; the outflows decrease the main market forces and should be considered as a problem to the State. The private forces may feel threatened by the inflows, even if they may use them for their own profit. The private forces should be worried about the outflows of IC, even if they could contribute to that flow by migrating themselves, with good reason.
- b. The inflows increase the stock of IC and the outflows decrease the stock of IC.

2.2. A first draft of the Atlas for fourteen economic spaces and four dimensions

In this section we survey the situation in the IC market in twelve economic spaces: the Nordic countries (2.2.1); Central Europe (2.2.2); Southern Europe (2.2.3); Eastern Europe (2.2.4), the Anglo Saxon Cluster (2.2.5), Japan and the Asian Tigers (2.2.6), Latin America including Mexico (2.2.7), Russia and other URSS republics not in the EU (2.2.8), India (2.2.9), China (2.2.10), Sub-Saharan Africa (2.2.11), the Muslim World (2.2.12). The findings are summarized in Table 2, from row 1 to 12, at the end of the section.

2.2.1 Nordic Europe

Norway, Finland, Sweden, Denmark and Iceland have top of the world indicators in the constituents of IC supply namely education, training, health and social conditions. In this particular case those levels are generated by a very strong force of Social Democratic Welfare State. Correspondingly, the companies and organizations of those countries demand intensively knowledge workers. As a result the quantity of equilibrium of IC in those countries is very high, even if the price of creating a knowledge worker is also very. Therefore we assume there is a “high equilibrium” regarding IC in those countries. As it was mentioned, the public sector is decisive in providing the knowledge workers by the means of a Social Democratic Welfare State, but in what concerns demand the private companies, as Nokia and Ericsson are also very important. Those countries have also the highest levels of the World Bank KEI indicator, indicating the

very high level of the IC stock among them (World Bank, 2011). However, the investment in IC as measured by the public expenses in education and health and by the private expenses in technology continues to be extremely high. As a consequence the returns derived from the IC investments are extremely high also: the Nordic countries have the highest figures in wellbeing in the world. All the mentioned prosperity attracted migrants from other countries, but the Nordic countries are relatively closed when compared with other economic spaces, particularly regarding Human IC. Companies export Nonhuman IC. Regarding Human IC the influx is very low and the out flux sporadic and short lived.

2.2.2 Central Europe

Germany, France, Belgium, the Netherlands, the Luxembourg, Austria, and Switzerland make a very interesting case in the IC world. Although not as strong as the Nordic countries, the USA or Japan, these countries also have high equilibriums, originated by a strong form of Conservative Welfare State. In this type of market some kind of tripartite dialog is in place between the State, the unions and the companies, in order to guarantee prosperity and progress. Therefore in these countries there is a strong reason for the demand to match the supply of IC and vice versa. That strong form of management originates high levels of investments as measured by the public investment in education or health and by the private investments in technology. As a result, the stock levels of IC as defined by the KEI indicators are of those countries are only second best to those of the Nordic countries. The returns of the investment are high in macro and micro terms. These countries export Nonhuman IC, namely to Third World economies, and import some very skilled knowledge workers mainly from Southern Europe and Eastern Europe.

2.2.3 Southern Europe

Portugal, Spain, Greece and Italy have traditionally low levels of IC supply, generated by a weak of Latin "Welfare State", much based in the family. Accordingly, in these countries the companies and organizations had a tendency to specialize in labour intensive but low skilled activities. These countries are also peculiar because the State, the political parties, the Catholic Church, the unions, the companies, the EU, and the families all have a strong part in the market of IC. The European Union, by massively supporting the investment in education, science and technology in those countries, effectively helped them to increase their natural low level of equilibrium in the IC market, and to achieve a middle level of equilibrium. In particular the supply of IC increased a lot, origination migration flows to Germany and the

UK from the younger and very skilled generations. The price of IC is lower in these countries than in the top of the world countries, but the lack of demand originates migrations. The technological balance was traditionally in big deficit and has been improving with the support of newly created third industrial revolution companies. The KEI figures of these countries are among the worst in Western Europe, signalling the middle level of IC stock, and even with the EU support the investment in IC is not immense. However the microeconomic figures of IC returns are very high.

2.2.4 Eastern Europe

Poland, Hungary, the Czech Republic, Slovakia, Slovenia, Bulgaria, Romania, and the ex-Yugoslavia, had since the end of World War II a similar evolution in IC terms. Until 1990 the Communist regime generated educated people within the Socialist Welfare State. But the level of technological knowledge of those individuals did not match that of Western Europe, due to the lags in the technological levels of the Eastern European companies. At the present moment and after a decade of adjustment and a decade of EU influence, the Eastern countries are catching up with the Central European ones, and have a “quasi high” equilibrium, benefiting by the localization of their neighbours’ companies in their countries. Therefore, after decades of State domination, the main agents in the IC markets of these countries are the public bodies helped by the EU (supplying) and the outside companies (demanding). The catching up with Central Europe is reflected in the increased levels of the KEI indexes of those countries, and in the increased levels of investments in education, health and technology; also the good economic performance of the last decade is a proof of the increasing returns of IC. Concerning migrations, in the first decade of democracy those countries received massively Nonhuman IC and exported Human IC namely to Central Europe and the UK, but now the flows are much more balanced.

2.2.5 The Anglo Saxon Cluster

The UK, Ireland, the USA, Canada, Australia and New Zealand form a distinct group in terms of the IC market. The level of equilibrium is high. Knowledge workers are generated by a strong and efficient form of Liberal Welfare State in which the role of the private sector is fundamental, even as a provider of education and health. The importance of the private sector is also underlined by the strength of the countries’ private companies. In these countries, and particularly in the USA and the UK, inequalities tend to be a problem, these two countries being the most unequal among the developed nations. However the global KEI indicators for those countries are high for world standards, indi-

cating high levels of IC, high levels of investment (when private and public are summed) and high levels of return. Social exclusion being an important social problem, it is well understood that the best way to remedy that flaw is to extend the investment in IC to everybody. This fact gives IC a huge social meaning. The countries tend to export non-Human IC to many countries and also to receive Human IC from many countries. Quite crucially, those countries are very much integrated. They almost constitute an “informal” “Anglo-Saxon economic union” around the UK and the USA, the dollar and the pound and with the English as common language, even if there are different types of English among within those countries. Therefore the intra national flows of Human and Nonhuman IC within those countries are substantial.

2.2.6. Japan and the Asian Tigers

Japan, South Korea, Taiwan, Singapore and Hong-Kong have a strong and efficient form of Conservative Welfare State, which generated a high equilibrium in the IC market. In these countries, the high technological levels of the organizations match the academic levels of the population. The whole system is organized within a principle of harmony and cooperation between the main agents involved, namely the State, the companies and the unions. These countries' KEI indexes are among the best in the world, reflecting high public and private investments in IC, which in turn generate high returns. These countries are closed by world standards, inward migrations being rare; however they tend to export much IC, with their multinationals. The outflow of Nonhuman IC tends to be higher than the outflow of Human IC, given some difficulties with integration at cultural and linguistic level, and taking into account the technologic capacity of those countries.

2.2.7 Latin America including Mexico

These countries share a common cultural heritage originated in the Iberian Peninsula. They also have a common historical evolution. Their IC market is characterized by a middle equilibrium originated by a Latin form of Quasi Welfare State. That Welfare State is a weak form of the Welfare State of Southern Europe, which, by world standards is not a top one (see 2.2.3). Most of these countries have united in Mercosur, a very interesting experience of economic integration that will foster the investments in IC. As a whole the market is weak and small; due to the failings of the Welfare State, few knowledge workers exist; companies tend to specialize in activities that demand low skilled workers; multinationals import non Human IC but take it away when they leave the country; the national scientific and national base is weak and small. The levels of stock, as expressed by the KEI are medium in world terms; the investment

levels were traditionally weak but are increasing with the process of economic emergence of the countries; returns tend to be considerable but are limited by the weak dimension of the countries' internal market. Due to those market limits, these countries tend to export the best knowledge workers to Europe and the United States, and to import Nonhuman IC; the emergence of Brazil as a world power, is currently inflecting that trend.

2.2.8 Russia and other ex-URSS republics not in the EU

The Communist regime built a Socialist Welfare State, based on the State monopoly. That form of WS generated educated persons. However the technological level of the knowledge was not top of the world, because the companies in which they worked were not very advanced in technological terms. With the fall of Communism, a strong process of liberalization ensued. Contrary to the group we defined as "Eastern Europe" those countries did not receive any support from the EU, a fact that diminished the dimension of the IC market in these countries and the level of its returns. Currently, those countries possess middle to high KEI indicators; after a slump, investments are raising again; returns are perceived as low because of the political problems those countries still face. During communism, those countries were included in a very closed IC market controlled by the URSS; migrations were rare. In the last decade an increase in the IC flows existed in those countries, with and out flux of people and an influx of technology.

2.2.9 India

Even if it is considered an emerging country, and even if the Gross Domestic Product growth rates are there to attest that emergence, India still has a very low equilibrium regarding the IC market. The Welfare State (WS) is only beginning to be developed in India, and even if the country is very large, the number of knowledge workers produced every year is not so big. Furthermore, the vast majority of the jobs in India still demand very low skills. Taking into account the dimension of the country, the public intervention and the private intervention in the IC market are weak and small; some essential support is being given by international organizations such as the multinationals, the Non-Governmental Organizations (NGOs), the World Bank and the United Nations. The IT revolution is changing India, but for the moment, the stock of IC as described by the KEI indicator is still very low; investments are increasing, but, per capita are still small; returns exist, and are very big, for the happy few organizations and persons that are able to profit from IC within the subcontinent. India exports young people to the developed world, where they graduate as MSc and PhDs. India receives technology from the developed world.

2.2.10 China

The analysis of the Chinese IC market has to take in to consideration that the country inhabits a fifth of the world population. China is going to become soon the biggest world economy, but currently the level of equilibrium in the Chinese IC market is still low. The Chinese government invests in education and in the cities organizations are beginning to demand for knowledge workers, but in rural China IC is only the needed to assure a life of subsistence. The level of China's KEI indicator is small by world terms, even if the investment is increasing and the returns are also increasing. In recent years, China became increasingly central in the world economy, and as a result many Chinese migrated to Western Europe, the USA, Australia and even Africa. Finally, in very recent years, China has begun to export technology.

2.2.11 Sub-Saharan Africa

In this very large and important part of the world, IC levels are among the lowest. The IC market, if it exists, is characterized by a very low equilibrium. Illiteracy levels are still very high and these countries lack knowledge workers decisively. The demand for knowledge workers is still very weak, a substantial percentage of the labour force being employed in the agriculture, or in industries or services that demand low skills. These countries don't have any established form of Welfare State yet. In these countries the international aid is still an important element of the IC market. The stock levels are among the lowest in the world, and the investment has been increasing since the definition of the Millennium goals. Returns are low if the person remains in the country but may be high if the person migrates. Africans have tried to migrate to Western Europe, Latin America and the States. Finally, lately Africa has been receiving people and technology from China.

2.2.12 Muslim World

In the wake of the recent developments, IC is a very important in the Muslim countries. The equilibrium level is low. Social problems exist regarding the provision of knowledge workers. The Muslim WS is certainly special. The tradition has a lot of influence in the agents. The KEI levels are small. It may be expected that the investment will rise in the forthcoming years, as a consequence of the societal openness. Muslim Knowledge workers to Europe have been migrating to Western Europe.

Table 2. Summary of the World Atlas (sketchy version)

	Market	Agents	Asset	International flow
Nordic Europe	High equilibrium Social Democratic Welfare State	Supply by State, demand by private	Top KEI indicators, very high public and private investment, very high return	Nonhuman IC exported Human IC: influx very low, out flux sporadic and short lived
Central Europe	High equilibriums, Con- servative Welfare State.	Public bodies, unions and companies in dialogue.	KEI only second best to the Nordic countries. High public investment in human IC and private investment in non Hu- man IC. High macro and micro returns.	Non human exports, to Third World countries, and Human imports, from Eastern European and Southern European countries
Southern Europe	Low Supply by a weak Latin Welfare State. EU support Middle equilibrium.	The State, the political parties, the Catholic Church, the unions, the companies, the EU, and the families.	Worst KEI of Western Europe. No top of the World investment levels. High returns.	Migrations of Human IC to Germany and the UK. Exports of technol- ogy increasing.
Eastern Europe	Quasi-high equilibrium. Socialist Welfare State until 1990. EU member- ship afterwards.	Decades of State domination. Now public bodies helped by the EU (supplying) outside companies (demanding).	KEI, investments and returns increasing in the last decade.	Quite balanced now. Inflow of Nonhuman and outflow of Human after 1989.
The Anglo Saxon Cluster	High equilibrium Liberal form of WS	Decisive private presence even as provider of health and education. Strong companies.	High KEI, high invest- ment, high return, but situations of social exclusion.	Inflow of Human IC, out- flow of Non-Human IC Strong intra-national flows
Japan and the Asian Tigers	High equilibrium Conservative form of WS	Cooperation between the State, the companies and the unions	High KEI indexes, high investments and high returns	The outflow of non- Human IC tends to be higher than the outflow of Human IC.

Latin America including Mexico	Middle equilibrium. Latin Welfare State	Mercosul. Weak Welfare State Multinationals	Middle KEI, Increasing investment	Outflow of Human IC to Europe and the USA. Inflow of Nonhuman by multinationals
Russia and other ex-URSS members	Middle equilibrium Socialist Welfare State Privatized after 1990.	After communism, strong liberalization. No EU support.	Middle to high KEI indicators. After a slump, investments are raising again. Low perceived returns due to political problems	Outflow of individuals and inflow of technology
India	Very low equilibrium. WS in its beginnings.	National: Weak public, weak private, Interna- tional: multinationals NGOs, World Bank, the United Nations	Low KEI, increasing investment, high return for lucky people	Exports of young people and imports of technology
China	Low equilibrium. WS in construction.	State plus private organizations	Small stock, increasing investment and return.	Human migrations to Eu- rope, the USA and Africa. Technology exports.
Sub-Saharan Africa	Lowest equilibrium. No established form of Welfare State.	International Aid and Millennium Goals.	Very low KEI values. Investment growing with the Millennium goals.	Outflows of Human IC, inflows of Chinese IC.
Muslim World	Low equilibrium. Special form of Welfare State	Tradition.	KEI indexes are small, investments should rise in the future.	Migrations to Europe.

Concluding remarks

Conclusions

This paper is one of the first steps in a long road in which we hope to continue. As we showed in Table 2 there are at least twelve groups of nations, for which a situation on the IC market is easily described. The affluence of Nordic Europe is certainly due to massive investments in IC; and Central Europe, even if it is facing severe economic turmoil, is very well placed in world terms, even if

coming second to the Nordic countries, due to high investments in IC; Southern Europe in the other hand, is facing deep crisis, because it has to compete with the Nordic and Central European countries and it does not possess, by no means, and due to historical reasons, its levels of IC. Things are made worse for these Southern European countries, because the Eastern European countries have much higher levels of IC, and are catching up profiting from democratization. Furthermore the Anglo-Saxon cluster is with Nordic Europe and Central Europe the third big IC region in the world; in these countries, the part of private entities in the IC market is massive, but anyway they have a strong IC equilibrium. And, the fourth strong region in IC exists around Japan, and the Celtic Tigers; this region benefits from specific cultural characteristics but also from deep rooted investments in IC that bring a considerable affluence to those countries. The other six cases are more problematic: India has still a low equilibrium in IC even if it is progressing, and the same must be said about Sub Saharan Africa, and the Muslim World. The growth of China and Brazil / Latin America since 2000 is due not only to low wages but to massive investments in education, knowledge and IC related aspects of life. Finally, Russia and neighbouring countries have had a convulsive transition in the nineties but have a significant level of IC, even if they have structural problems operating their economies, which create development problems.

Suggestions to further studies

We plan report our further studies in a book. It will be a large team effort. We hope to deliver the first edition in 2013 or 2014. Suggestions and inputs on this matter are thankfully welcomed.

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